

**2009 OREF Resident Research Symposia
Virginia Area**

Shoulder Resurfacing: Past, Present, and Future

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PURPOSE: The purpose of this paper is to review and demonstrate shoulder resurfacing, including surgical techniques, prostheses, outcomes, complications, advantages, disadvantages, and future directions.

SIGNIFICANCE: Shoulder resurfacing is a type of shoulder replacement that involves capping the humeral head and preserving the bone of the proximal humerus. The procedure has been performed since the 1970s for various indications, including osteoarthritis, rheumatoid arthritis, and avascular necrosis. Numerous prosthetic designs have been developed, with various advantages and disadvantages.

METHODS: A comprehensive review of the literature on shoulder resurfacing was conducted, as well as an examination of the prostheses and techniques used for this procedure. The authors evaluated the biomechanical results, clinical and radiographic outcomes, as well as complications associated with various shoulder resurfacing prostheses. In addition, ongoing questions about materials, the effectiveness of glenoid resurfacing, and future directions were investigated.

RESULTS: An assessment of 14 studies of shoulder resurfacing showed clinical and radiographic success rates that ranged from 76 to 95% at two to seven year follow-up, which was comparable to stemmed prostheses, with fewer periprosthetic fractures. Since the introduction of hydroxyapatite coating, the incidence of radiolucent lines and prosthetic loosening in resurfacing have declined.

DISCUSSION: Shoulder resurfacing appears to be a viable alternative to conventional shoulder replacement. The potential advantages of resurfacing include a less invasive approach, greater anatomic offset, preservation of native bone, potentially shorter surgical times, and potential for easier revision than a stemmed prosthesis. The Long-term studies are needed to further elucidate the potential of humeral surface arthroplasty in the treatment of shoulder arthropathy. This paper demonstrates the various prostheses and approaches that are currently in use, examines the potential advantages as well as disadvantages of shoulder resurfacing, and explores the future directions of this procedure.